AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of manufacturing a semiconductor element~~, the semiconductor element~~ having at least a substrate, a lower wiring layer, an upper wiring layer, a via-hole connecting the lower wiring layer to the upper wiring layer, and a W material filled in the via-hole, ~~the~~ said method comprising:

forming the lower wiring layer on top of the substrate;

forming the via-hole to extend upwardly from the lower wiring layer;

feeding a single fluorine compound gas having a reducing function into the via-hole;

forming a W nucleus in the via-hole;

filling the via-hole with W; and

forming the upper wiring layer.

2. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein the fluorine compound gas additionally has a cleaning function.

3. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein the fluorine compound gas ~~includes~~ is a WF_6 gas.

4. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein the fluorine compound gas ~~includes~~ is a NF_3 gas.

5. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein the fluorine compound gas ~~includes~~ is a SiF_4 gas.

6. (Currently Amended) A method of manufacturing a semiconductor element~~, the semiconductor element~~ having at least a substrate, a lower wiring layer, an upper wiring layer, a via-hole connecting the lower wiring layer to the upper wiring layer, and a W material filled in the via-hole, ~~the~~ said method comprising:

forming the lower wiring layer on top of the substrate;

forming the via-hole to extend upwardly from the lower wiring layer;

feeding a single fluorine compound gas into the via-hole to clean the via-hole and to form a part of a W nucleus in the via-hole, the fluorine compound gas having a reducing function and a cleaning function;

forming the ~~remainder~~ remaining part of the W nucleus;

filling the via-hole with W; and

forming the upper wiring layer.

7. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, wherein the fluorine compound gas ~~includes~~ is a SiF_4 gas.

8. (Currently Amended) A method of manufacturing a semiconductor element~~, the semiconductor element~~ having at least a substrate, a lower wiring layer, an upper wiring layer, a via-hole connecting the lower wiring layer to the upper wiring layer, and a W material filled in the via-hole, ~~the~~ said method comprising:

forming the lower wiring layer on top of the substrate;

forming the via-hole to extend upwardly from the lower wiring layer;

feeding a single fluorine compound gas into the via-hole to clean the via-hole and to form a part of a W nucleus in the via-hole, the fluorine compound gas having a reducing function and a cleaning function;

feeding a SiH_4 gas and a WF_6 gas into the via-hole to form the ~~remainder~~

remaining part of the W nucleus;

filling the via-hole with W by a CVD process; and

forming the upper wiring layer.

9. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein ~~the~~ said filling of the via-hole with W is performed by a CVD process.

10. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, wherein ~~the~~ said forming of ~~a~~ the W nucleus in the via-hole includes feeding a ~~SiH4~~ SiH_4 gas and a ~~WF6~~ WF_6 gas into the via-hole.

11. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, further comprising forming a first insulation layer between the substrate and the lower wiring layer.

12. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 11, further comprising forming a second insulation layer between the lower wiring layer and the upper wiring layer, wherein said forming of the via-hole causes the via-hole to extend ~~extends~~ into the second insulation layer.

13. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 1, further comprising performing a sputtering process and forming an adhesive layer on the via-hole~~, between the forming of~~ after the via-hole is formed in said forming of the via-hole and ~~the~~ before said feeding of the single fluorine compound gas.

14. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, wherein ~~the~~ said filling of the via-hole with W is performed by a CVD process.

15. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, wherein ~~the~~ said forming of the ~~remainder~~ remaining part of the W nucleus includes feeding a ~~SiH4~~ SiH_4 gas and a ~~WF6~~ WF_6 gas into the via-hole.

16. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, further comprising forming a first insulation layer between the substrate and the lower wiring layer.

17. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 16, further comprising forming a second insulation layer between the lower wiring layer and the upper wiring layer, wherein said forming of the via-hole ~~extends~~ causes the via-hole to extend into the second insulation layer.

18. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, further comprising performing a sputtering process to clean the via-hole and forming an adhesive layer on the via-hole~~, between the forming of~~ after the via-hole is formed in said forming of the via-hole and before said ~~the~~ feeding of the single fluorine compound gas.

19. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 6, wherein the part of the W nucleus formed ~~by~~ in said feeding of the single fluorine compound gas into the via-hole is a Si layer.

20. (Currently Amended) The method of manufacturing a semiconductor element according to Claim 8, further comprising performing a sputtering process to clean the via-hole and forming an adhesive layer on the via-hole~~, between the forming of~~ after the via-hole is formed in said forming of the via-hole and ~~the~~ before said feeding of the single fluorine compound gas.